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A German View of the Value of the Forest.

WE recently attempted to answer in a general way the question, "What is Forestry?" To give some idea of the importance of this science to the people at large we now quote some passages from an address delivered by Dr. Franz Baur, in November last, on the occasion of his inauguration as Rector of the Ludwig-Maximilian University in Munich.

This address was a discussion of the peculiar place held by the forest in national life, or, as Dr. Baur expressed it, "in the housekeeping of a nation." In the course of it he showed that forest preservation has not only a strictly economical, but also a social-political and ethical side. "At the time," he said, "of the despotic rule of Napoleon I., near the beginning of this century, Germany lay economically exhausted, and through the pressure of necessity the axe was used more vigorously against German forests than in normal times. It was then that E. M. Arndt, who loved his fatherland above all else, exclaimed, 'Now, in many lands, the axe which is laid against the tree is laid against the people itself.' Evidently, in using these words, he thought less of a decrease in the revenues from the forests than of a lasting injury to the character of the German people through persistent forest destruction. And, in a similar spirit, W. von Riehl wrote these significant words: 'Hew down the forests and you will ruin our historic burgher society. By destroying the contrast between field and forest you will take from the German people its principle of life. Man does not live by bread alone. Even if we should need wood no more, we should need the woods. Even if we should no longer require the dried products of the forest to warm our bodies, we should still require the living forest to warm our souls.' The truth of these words grows ever clearer with the rapid development of our industrial life. Already in our great factory towns there live millions of people who exhaust themselves during the week in crowded, and often unwholesome, workrooms, and on Sundays and holidays seek indispensable recuperation for mind and body in the fresh green forest."

This, according to Dr. Baur, is one peculiarity of the forest among the economical treasures of a nation—the fact that it has a spiritual, an ethical, as well as a purely economical, importance. And from this he deduces the truth that the management of public forests should not be regarded in a narrowly business-like way, as a mere matter of present capital and present interest. The forests of a nation should be looked upon as a great national trust. They should be so controlled that, while the present generation is enabled to draw from them as large a revenue as possible, at least as large and varied a revenue should be secured to future generations. "The dissatisfied directors of our forest finances," he adds, "who always consider the present profit they yield too small, would be in better spirits if they more clearly realized this radical peculiarity of the forestry question." It is true that forests may be made to yield a satisfactory revenue, but since they mature slowly, instead of giving an annual crop, like wheat or barley, they cannot, like many other sources of national wealth, be regarded solely from the money-making standpoint, and, still less, can they lend themselves to the modern wish to secure immediate returns upon invested capital, and to meet, with speculative rapidity, the changing needs and tastes of a community.

After briefly surveying the past history of European forests, during the long periods when no official care was taken of them, and during the more recent periods when a right realization of what this care ought to be, in extent and in kind, he explained that there are still European countries, like Spain and Denmark, where the need for scientific forestry is not yet appreciated; and of the United States he said: "Even in the primeval forests of North America, once believed to be inexhaustible, irreparable damage has already been wrought. Eager for quick profits, the great lumber syndicates of that continent still continue the work of destruction; yet, even there, the necessity for some thought for the future has been recognized, and millions of acres have been set apart as forest reservations—that is, even in this comparatively new country, it has come to be a recognized fact, as it is in the Old World, that if the wounds inflicted on the forest through lack of forethought are to be healed, the cure must be worked by the state rather than by rich private landholders. Even the popular assemblies of most of the German states are no longer willing that their forests should be at the mercy of private interests."

Dr. Baur adds, that in addition to lumber, fuel and other staple products, the forests produce vast quantities of berries, fruits, flowers, mushrooms, mosses, basket-material and materials for decoration, the value of which cannot be accurately computed, although it certainly amounts to millions of marks annually, and hundreds of poor families in Germany, who would otherwise be destitute, depend upon these products for a livelihood.

The unique value, however, of forest-lands as sources of refreshment, enjoyment and inspiration for the souls of men is something which should always be insisted on. If one imagines Heidelberg, for instance, denuded of its forests, or Baden-Baden or Carlsbad, one can understand the importance of forest surroundings to an urban community. Nor are economic interests ignored even when this point of view is taken. Were these cities denuded of their forest environment the multitudes of travelers who now frequent them and bring gold to the hands of their inhabitants would conspicuously diminish.

No government, says Dr. Baur, in conclusion, can administer a forest as it may administer a factory, where it writes over the door, "No admittance except upon business." To do this would be to destroy the value of the forests as a possession of the people. Their portals must be thrown wide open, not only to the architect, the painter, the musician and the poet, not only to the scientific student and the seeker after health, but to the public at large. And in this country one needs to add, the public at large as well as the government must be taught to realize that, while the forests should be utilized by all they should be injured by none, for they are the property, not of this generation only, but of generations yet to be born.

A Botanical Journey in Texas.—I.

DURING the month of May copious and almost continuous rains fell throughout most of Texas, and from Louisiana to Mexico all farm crops were growing luxuriantly and all nature was rejoicing, when, on the second day of June, I started to make a long and tortuous botanical trip from San Antonio to El Paso, a distance of over six hundred miles. Western Texas was at its best, the trees and plants dressed in full holiday attire, with new shoots longer and more drooping than they are in drier seasons, leaves greener, flowers larger and handsomer.

Lovers of nature must have noticed the beauty of all forest scenery in the full growing time of the trees, when the varying tints of green in the newer leaves mingle with the deeper hue of those that are fully developed, and no such lover would soon tire of contemplating a grove of Yellow Locust in June and after a drenching rain has washed their leaves.

Botanizing from the windows of swiftly moving railway cars is too careless observation for the purposes of science, except in regard to well-known and conspicuous species, which, of course, may be recognized. As far west as San Antonio occurs the French Mulberry (Callicarpa), the Box-Elder, which will be found at intervals as far as the mountain cañons of central New Mexico and southern Colorado, and the Honey Locust which about San Antonio is either native or naturalized. Wild China or Soap-berry, Sapindus, in full blossom, is common in woods throughout our entire journey.

After we cross Medina River the ripe crimson fruit of Rhus microphylla renders that shrub conspicuous and adds variety and beauty to the forest scenery. Travelers who have been over this route in times of long-continued droughts are now surprised to see in the clearing of every ranchman and small farmer luxuriant fields of rank tall Corn and other grains growing in a region which they had thought to be only a dreary waste. A stop for a day at Sabinal gave me an opportunity to botanize along the river and among the hills. Sabinal signifies a Cypress grove, and the Cypress-trees grow along the river. Some individual trees are three to four feet in diameter. Most of them, however, like the Buttonball trees of Kansas, have outlived their usefulness. Yet there are thrifty and vigorous trees here, which, left to themselves, will long preserve the significance of the name of the river and that of the little village near by.

Going from Sabinal we soon reach the valley of the Leona and of the near-by Neuces River. The valleys of those rivers are the lowest of any river valleys between the San Antonio and the Rio Grande Rivers. Irrigated farming there is already begun, and, doubtless, will be carried on to still greater success. Near Nueces River large Tree Acacias appear. That river, too, is about the eastern limit of Willow Catalpa, Chilopsis, which we shall see at different points far up into New Mexico. So Fallugia, with a still more northern range, grows southward to the Nueces.

A wide, deep and swiftly flowing current of water fills the river-bed, where two years ago I walked for miles without seeing a drop of water, and where on the dry sands I collected Fallugia, the small-fruited Walnut, other shrubs and many rare smaller plants. The country here assumes a more rough and mountainous aspect. The shrubs are sturdier in their growth and the flora generally is changing. The almost ubiquitous Mesquit is nearly everywhere and heavily loaded with young fruit. Because the Mesquit sometimes grows on the most barren hills it must not be supposed that the species does not recognize better opportunities when they present themselves. Those individuals now so forlorn, or, at least, their ancestors, have seen better days. In such localities they simply persist from a time when, perhaps, different climatic conditions prevailed here, or before a nomadic husbandry had made their homes a practical desert. Indiscriminate general grazing will make any country a desert.

No station on the Southern Pacific Railway, so easily accessible as Spofford, gives botanical tourists opportunity to find Acacia tortuosa. It grows a few rods above the station on the right-hand side of the road as one goes up. The flower-clusters of this species are very like those of A. Farnesiana, but its generic habit and its long Mesquit-like pods lead to its easy identification. It is hardly fair treatment of a peculiar and handsome shrub to call this species, as some botanists do, Mexican, as it is by nativity and residence a United States species. If the tourist can stop off a day at Spofford he will have time to visit Las Moras River, where he may find the remarkable semi-tropical white Water-lily, and the largest of our species of Castalia, C. ampla. I found it in the waters of that river, just in the rear of Fort Clark, and in full blossom on the twenty-second day of January, 1893, which, so far as I am informed, is the first time that the species has been identified as growing in Texas, or in North America, outside of Mexico. And if the tourist be curious in the so-called small things of science, he may chance to find in the same locality pods of the beautiful Red Bean, Sophora secundiflora, containing eight beans. The pods are sometimes fitted to hold only a single bean.

My stop at Del Rio was opportune to inspect the early summer flora, as I had already the late summer flora of that region. The Yellow Water-lily (Nymphæa), so common in the waters of San Filipe River, at Del Rio, varies somewhat from the more eastern forms of that species. The tabs of its leaves are produced, and end in an acumination giving to the leaves an elliptical outline. San Filipe River is about the southern limit of Eysenhardtia orthocarpa, with its upright fruit, as indicated by its name, while the pods of its southern congener, E. amorphoides, are reflexed. Nogal, Juglans rupestris, is very common along the river, where it sometimes grows into a large tree. Its fruit is small, but two or three times as large as that of the shrubby form.

From beyond the Sabinal to beyond the Pecos, at least, the honey-yielding shrub of western Texas, which Mexicans call Huajillo, and botanists know as a Pithecolobium, grows in great abundance. The groves of this species in flowering time are the favorite pastures of the bees, and at other times they are hardly less pastures for domestic animals, which largely subsist upon its leaves and fruit. Meanwhile the species finds time to manufacture in large quantities a strong and pleasant perfume. This species, Acacia Farnesiana, one or two other native Acacias and two or three species of Mimosa yield from their flowers such an abundance of strongly fragrant volatile oil that it might be profitable for perfumers to utilize them.

Both species of Siphonoglossa near Del Rio were in blossom at the time of my visit. They are curiously made and good-looking plants. Near them were growing Krameria canescens, another Krameria and a handsome shrubby Lippia producing its flowering stems in whorls around the main axis. Xanthrima Texanum, a handsome yellow-flowered composite, is common throughout central and western Texas, extending northward to southern Kansas. Chrysopsis villosa is an inhabitant of most of the region of the plains. It is a variant species. Several of its forms have been exalted to named varieties, an honor of which no one of them is really worthy.

Trichocoronis Wrightii, a western composite with variously cut leaves and rayless white flowers, is a plant of devious ways of living. It floats in the river, producing rootlets at the nodes of its stems. In shallow waters it roots in the soft bottoms. Where no water is to be found it grows equally well in the rich limon. The species probably located at Del Rio on account of the perennial waters of the San Filipe. The handsome Centaurea Americana of Arkansas and the Indian Territory extends through Texas to Mexico, and the small-growing Virginian Thistle bears it company all the way. Cuscuta squamata, one of the Love vines, grows abundantly on the alkaline soils of

western Texas. It lives generally upon composite, and more rarely upon Malvaceous plants. Helianthus cilioza is its favorite host, which it sometimes kills.

Ephedra pedunculata, a slender-growing species, too weak to stand alone, ascends as high as any of its congeners by associating with stronger friendly plants and rising with them. It is found at various stations along our way. Apodanthera undulata, an important member of the Squash family, inhabits western Texas and extends into New Mexico, with its large leaves, white flowers and ribbed fruit. The very handsome shrubby little Dalea, D. formosa, is seen at various points along our route and high up on Mount Franklin, at El Paso. Hoffmannseggia drepanocarpa is a Texan of long and respectable standing in good plant society. It is also common at Las Cruces, New Mexico, on the high mesa between the town and "Little Mountain." Fine specimens, and of larger growth than I have elsewhere seen, were growing near Albuquerque.

La Junta, Colo. *E. N. Plank.*

Distribution of the White Cedar in New Jersey.

IN the peculiar climate and soil of the coast plain of New Jersey the White Cedar, Cupressus thyoides, a very valuable soft wood, finds a suitable environment. These trees produce many seeds even while very young, and these are widely disseminated by the wind. The trees grow with great rapidity, and there are extensive neglected areas where it can be profitably cultivated; and yet White Cedar is becoming scarce, owing to the demand for its timber, and no attempt is made to prevent its extermination. Less desirable species, which are fit only for fuel, have been and are still allowed to usurp its place. In the northern part of the state it grows in a very few isolated localities. Botanists have found it near the southern end of Greenwood Lake, swamp at Kingsland, New Durham and Secaucus swamps, meadows near Newark, Bergen Point and South Amboy (see *Catalogue of Plants*, Part I., vol. ii., Final Report of State Geologist of New Jersey). But there is another station about a mile from High Point, and the posts and rustic work of the inn there are made from white cedar cut in this swamp. One is surprised to find a typical isolated swamp of White Cedar in a very thrifty condition growing in a little valley near the New York state line and fifteen hundred feet above sea-level. Other plants, such as the Pitcher-plant, Sphagnum, etc., which are common in the swamps of the southern part of New Jersey, are growing with the Cedar.

May's Landing, N. J. *John Gifford.*

Foreign Correspondence.

Mr. Chamberlain's Garden.

THE eminent statesman who is now Her Majesty's Minister for the Colonies, the Right Honorable Joseph Chamberlain, has for many years taken a keen interest in Orchids, as well as in gardening generally, and his garden at King's Heath, near Birmingham, has long been famous for the collection of plants it contains, Mr. Chamberlain being as keen an amateur gardener as any in England. He knows his plants well and watches their growth and behavior with all the zest of a cultivator; indeed, I was informed by his Orchid grower, Mr. Burberry, that he almost daily inspects the collection and discusses the details of its management with the same thoroughness as he exhibits in his more serious work. Mr. Chamberlain's only recreation is his garden. Only a few weeks ago he wrote to Kew an account of some interesting observations he had made on hybrid Orchids with a view of ascertaining the prepotency of their respective parents, and this at a time when matters of state requiring the most delicate handling were under consideration. Mr. Chamberlain takes an interest in Kew, and it is partly due to his desire that Kew should be well equipped, that the completion of the large temperate house has been undertaken at a cost of about twelve thousand pounds.

Highbury, the residence of Mr. Chamberlain, stands on an eminence looking south over the open country. The garden is not large, only about fifteen acres, but it is laid out with great taste in what is known as the natural style. Hollies, Rhododendrons and Conifers are its main features. Surrounding the garden stretch about a hundred acres of meadow-land so planted with trees as to form an important adjunct to it. The farming of this land is the hobby of Mr. Austin Chamberlain, M.P., who lives with his father at Highbury. Another son, Neville, manages an extensive estate in the Bahamas, devoted chiefly to the cultivation of Sisal.

The houses at Highbury are grouped about the residence, most of them being connected with it by a glass corridor some hundred and fifty feet long, one end of which opens into the conservatory, and this again into the drawing-room. The conservatory contains a rockery, cascade, fountain, etc., and is tastefully planted with Palms, Tree Ferns and Bamboos, with other plants intermixed. A large specimen of Anthurium Chamberlainii is a striking object in this house. Introduced accidentally from no one knows where, this grand Aroid flowered for the first time at Highbury about twelve years ago, when it was named by Dr. Masters and figured in *The Gardeners' Chronicle*. The only other example of this species is at Kew, where it flowers frequently and is now ripening seeds. The Highbury plant now has a stem as thick as a man's wrist and three feet high, bearing about a dozen enormous sagittate leaves. This plant also is ripening seeds. In one of the houses there is a batch of plants which are the outcome of crossing A. Chamberlainii with A. Andreanum; the flowering of this cross is looked forward to with considerable interest.

The corridor is draped with a selection of greenhouse climbers, and planted along one side with ornamental foliage and flowering plants. A large mass of Hedychium Gardnerianum filled a circular bed in the conservatory and looked particularly attractive in January, with its rich green, glossy leaves and spikes of fruit colored orange and scarlet, and more effective even than the flowers. Cultivators unacquainted with this character in Hedychiums sacrifice their winter value by cutting off the spikes as soon as the flowers fade.

A dozen houses open at right angles from the corridor, each containing some special kind of plant. There are also several houses behind these again, and a large lean-to range, recently built, is filled partly with Dendrobiums and other sun-loving Orchids, and partly with fruit-trees. Zonal Pelargoniums are favorites with Mr. Chamberlain, a house being filled with the best varieties to flower in winter. Primula Sinensis is well grown in Birmingham, several nurserymen there being famed for its cultivation. A house is devoted to it and to Cinerarias at Highbury. Winter-flowering Begonias are also a special feature there, especially the hybrids from B. Socotrana.

The Orchids are the principal attraction, about a dozen houses being filled with them. Mr. Chamberlain does not apparently care for Cypripediums, the only species I noticed there being C. Chamberlainianum, of which a plant bore a scape one and a half feet long with sixteen flowers, or, rather, that was the total number borne, this species being disappointing in its habit of developing only one, or at most two, flowers at a time. A house filled with Cattleyas in good health, and another with Lælias, chiefly forms of L. anceps, were remarked. The latter were represented by big pecimens of the white varieties, that named Sanderiana by one plant with seventeen scapes bearing from three to five open flowers each; a second specimen, just over, had borne nineteen scapes with an aggregate of seventy-three flowers. The rare variety Dawsoni was in flower, and Chamberlain's variety, equally rare, was in good condition. The white varieties of L. anceps are not damaged by fog to the same extent as the type. Dendrobiums are favorites at Highbury, and many rare

species are represented there. D. glomeratum, a recent introduction, had slender pseudo-bulbs two feet long bearing clusters of flowers one and a half inches wide, remarkable for their small infolded labellum and rich glistening mauve-crimson color. D. cymbridioides, with the habit of Cœlogyne and slender racemes of pale yellow flowers, lined with red-brown on the lip, was in flower. I have not seen this plant elsewhere. A very fine example of D. Falconeri was suspended in the corridor, where it hangs all the year, and grows and blooms freely. Hybrid Dendrobiums of many kinds, not yet flowered, and, from their parentage, likely to be useful additions, were noted in one of the warm houses. A similar number of unflowered hybrid Cattleyas and Lælias occupied a shelf in the Cattleya-house. Dendrobium nobile nobilius, with a dozen pseudo-bulbs, each a yard long and as thick as a man's thumb; grand examples of D. Wardianum, D. crassinode, the rare D. Lowianum and such popular hybrids as splendidissimum, Cassiope, etc., were noted either in flower or in bud.

Miltonia vexillaria and M. Roezlii are exceptionally well grown at Highbury, and in the same house with the latter I noticed a good example of the miffy Phajus tuberculosus. A house filled with forms of Cattleya gigas and Cœlogyne cristata; another with good varieties of Odontoglossum crispum and allies, and another with Masdevallias revealed careful and skilled management.

Cool Orchids generally are well represented at Highbury, and in the middle of January the display of bloom was rich and varied. Odontoglossum coronarium is grown there astonishingly well in a cold house on a turf of fibrous peat resting on a wood-raft and placed close to the roof glass in a shaded position. Here it has formed a mass two feet through of healthy pseudo-bulbs and leaves, and a short time ago it bore seven strong spikes of flowers. Epidendrum vitellinum is also an exceptional plant under Mr. Burberry's care. Odontoglossum citrosmum, O. Cervantesii, Oncidium macranthum, O. Leopoldii, O. Andersonianum and many others were remarkable either for their flowers or healthy vigorous growth.

Mexican Orchids are well grown, the secret of success being, no doubt, the light houses in which they are accommodated and which are never shaded. A house partly filled with Phalænopsis was a source of anxiety to Mr. Burberry, who finds what many others have found in the continued cultivation of this genus, namely, that the plants are apt to go wrong without any apparent cause.

Tea Roses and Carnations are largely grown under glass, these being the favorite flowers of Mrs. Chamberlain.

A novel feature of the houses at Highbury is the possession of electric light, which is so fixed that at night by touching a button Mr. Chamberlain can transform his houses into a veritable fairyland, which can be inspected by his guests with comfort and without any risk of catching cold.

London. *W. Watson.*

New or Little-known Plants.

Rhododendron mucronulatum.

THIS deciduous-leaved shrub, raised in the Arnold Arboretum from seed gathered on the mountains near Pekin, and sent in 1883 by Dr. Bretschneider, at that time surgeon of the Russian Embassy in the Chinese capital, is closely related to the Siberian and Manchurian Rhododendron Dauricum, although, for garden purposes at least, it will, perhaps, be well to consider it distinct. In American gardens it is now a robust shrub from three to four feet in height, with slender stems, and branches clothed during their first year with smooth, rather light yellow bark. The leaves, which do not unfold until after the flowers have begun to fade, are oblong, gradually narrowed to both ends, and mucronate at the apex, very finely serrate, thin and firm, dark green above, pale and pubescent below, from two to two and a half inches long, about an inch wide and short-stalked, turning in the autumn, before falling, bright scarlet. The flowers are broadly campanulate, about an inch across, and light clear rose-color, with broad rounded corolla lobes, and are produced in two to four-flowered clusters; they appear in eastern Massachusetts during the last week in April, before those of any other plant of this class, and at a time when comparatively few other shrubs are in bloom. Their brilliancy and cheerfulness and the splendid color the leaves assume late in the autumn make this little Rhododendron, which is very hardy, a most desirable inhabitant of northern gardens.

Rhododendron mucronulatum * (see illustration on page 65 of this issue), which the Russian botanist Maximowicz, who made a special study of these plants, considered merely a geographical variety of Rhododendron Dauricum, inhabits south-eastern Siberia, Russian Manchuria and northern China. *C. S. S.*

Plant Notes.

Begonia Socotrana.—Plants that produce abundant crops of flowers in northern gardens during the short sunless days of November and December are not very numerous, and every addition to their number is eagerly welcomed by gardeners. Last year we spoke of the value of the winter-blooming tuberous-rooted Begonia Socotrana, and the sight of a house in December filled with plants of this Begonia in the neighborhood of Boston has served to confirm the good opinion of it we have already expressed. The bulbs begin to grow and are potted in July, and the first flowers appear at the very end of October and continue to open for six or seven weeks, the plants being well covered until after Christmas. The flowers are large, of a beautiful clear pink color, borne in ample open clusters and raised well above the large bright green, lustrous, peltate leaves. Flowering plants stand well in conservatories, and are admirably suited for the decoration of dinner-tables; and cut flowers remain in good condition for nearly a week in the temperature of an ordinary living-room. B. Socotrana is so easy to cultivate, and increases so rapidly by the development of new tubers, giving such large results for a small outlay, that it will probably become a popular florist plant as soon as it is better known and its value for late autumn and early winter decoration is understood.

Ulmus racemosa.—The American Elm, or White Elm, as it is sometimes called, has so long been a favorite tree for ornamental planting and has been used so universally along country roads and city streets, by lonely farm cottages as well as in urban parks and the grounds about stately villas, that our other native Elms have been quite overlooked. There is an excuse for excluding the Slippery Elm from public grounds and streets because it is difficult to save it from the predatory small boy, whose appetite is tempted by its fragrant and mucilaginous inner bark. Nevertheless, this tree transplants easily, grows rapidly into a beautiful shape, and is worth a place in any private collection. The beautiful Cedar Elm, Ulmus crassifolia, ranges too far south for our climate, although in Texas it is one of the most graceful of our forest-trees. The Wahoo, too, U. elata, another attractive tree, is also doubtfully hardy north of Washington, but there is little excuse for neglecting to plant the Cork Elm, U. racemosa, also locally called the Hickory Elm and Rock Elm. It is a useful tree with hard close-grained wood that polishes well and is valuable for every purpose where strength, toughness and flexibility are required, so that it is well worth planting as a timber-tree. But it is also attractive as a shade-tree for its distinct and handsome appearance. At its best it is a hundred feet high, with a trunk three feet through, a narrow rounded head, and leaves which are deep green and glossy above, paler and covered with a soft pubescence below. In autumn these turn to a clear bright yellow. It does not grow as rapidly as the White Elm, but it is a vigorous thrifty tree, and

* Rhododendron mucronulatum, Turczaninow, *Bull. Soc. Nat. Mosc.*, x., 155 (1837); *Fl. Baicalensi-Dahurica*, ii., 208.—De Candolle, *Prodr.*, vii., pt. ii., 327.
Rhododendron Dauricum, β mucronulatum, Maximowicz, *Mém. Acad. Sci. St. Pétersburg*, sér. 7, xvi., 43 (Rhododendreæ Asiæ Orientalis).

certainly does not deserve the utter neglect with which it has been treated. The tree has acquired its common name from the broad, irregular corky wings with which the stiff branchlets are usually furnished.

Cultural Department.

Amaryllis.

UPON looking over the stock of mature bulbs of Amaryllis at this time I find that many need encouragement as the flower-spikes are just showing up. It is sometimes desirable to have them come on in succession, and in this case it is best not to repot all the bulbs now, but only those that are most advanced, starting the others later as they require. We have found, however, that it is not well to retard Amaryllis-bulbs to any great extent beyond their natural flowering time. Last year the display would have been of little value to us before May, and an attempt was made to keep them for this time, but the spikes received a check, and were not nearly so fine as if encouraged to come on steadily from the time they were potted. Indeed, many did not develop beyond the bud-stage. On the other hand, if started now and kept in moderate warmth until warm weather this early start will give the bulbs a long season of growth, and the foliage will be sufficiently matured on the arrival of frost in autumn to allow that the pots be put on their sides under the stages, or in some convenient place in the greenhouse of no special value for other plants. If the pots are stood on an earthen bottom after the leaves have died off it will be found that very little water will be needed during winter, as the pots will absorb enough moisture from the earth to keep the roots from becoming too dry. Amaryllis of the hybrid section, such as are generally grown, are almost truly deciduous; but a few roots are sure to remain in a living state, and the more there are the better will be the start made from this time on. The effort the plant is required to make in producing the large flowers is considerable, as may be easily seen by the shrunken condition of the bulbs that were plump and fat before starting to grow, and it takes them all summer to recuperate and lay a foundation for the following year.

At potting-time it will be found that there are a number of young offsets clustered around the parent bulb. It is preferable to keep to a single bulb in a six or seven inch pot after the flowering size and strength has been attained, and these offsets may be planted around the edge of other pots to grow on separately. If space is limited, later on in early summer they may be planted out in the open ground, where they will make

Fig. 7.—Rhododendron mucronu'atum.—See page 64.

a good growth if carefully protected from frost, to which they are most susceptible both in spring and fall. Flowering-size bulbs may be planted in pots of large size, several in a pot, but I am of opinion that for decorative purposes they are more serviceable when dotted in among a groundwork of green, owing to their scant foliage. A setting of Adiantum cuneatum is especially useful for this purpose. Another reason why pots of a small size are to be preferred is because of the ease with which these can be stored in winter. They will stand on a very narrow margin next the walks under the benches, not too near the heating pipes. It will have much to do with the popularity of Amaryllis when it is realized how easy it is to store the pots when the benches are crowded with other occupants.

For potting material we use a good sound loam made rich with the addition of bone ground moderately fine. Bone-meal should not be used, this being apt to close the pores of the soil and prevent proper aëration, a most important point in the culture of all pot plants. To assist aëration we use coarse sand and charcoal dust, and if the loam is naturally heavy or retentive some leaf-mold or material from an old Mushroom bed to lighten it. Amaryllis have thick succulent roots and like a rich, free-rooting soil.

It is also desirable to place the pots where the soil contained in them will be at least as warm or a little warmer than the temperature of the structure in which they are. To accomplish this the great English growers place them in a gentle bottom-heat of some fermenting material until the flowers are developed. But this is not necessary if the pots are placed on a bench over the heating pipes, and some non-conducting material, as sand, put between the pots. A part of a propagating bench is as good a position as one could desire. The roots will start and grow without any check, and sometimes the quantity of bloom is doubled by this means.

Thrips are the one enemy to be avoided in Amaryllis culture, and their work is shown by the under sides of the foliage turning red in spots. A wash with any approved insecticide will banish them if followed up once or twice at intervals of a few days. No shade is needed at any time, except to prolong their beauty when the flowers expand, the Amaryllis being a native of south Africa and a sun-loving plant.

This is a good time to sow seeds of a good strain. These have a peculiar black envelope like tissue-paper. The germ is small in comparison with the envelope, and the whole is easily lost from overwatering before germination takes place. To avoid loss, the seeds should be pressed into the soil on edge when sowing them, covered lightly with very sandy soil and placed in a temperature of seventy degrees, Fahrenheit, until they are well up. Seedlings will be found to keep their foliage during winter until the flowering stage has been reached; this varies from two to three years. As soon as the plants are strong enough to bloom the leaves will die off each year in autumn. Young bulbs must, therefore, be given encouragement during winter and summer from their infancy until they show signs of maturity, and after that they must have an annual rest of four to five months. There are evergreen species of Amaryllis in cultivation that have been derived partly from A. aulica, which is evergreen, and from a packet of seed it is often noted that some plants are obtained whose leaves never die down. These are the exceptions, and must be treated accordingly, as an attempt to dry off the foliage will most likely result in no bloom the following year.

South Lancaster, Mass. *E. O. Orpet.*

Showy Acanthads.

PERISTROPHE SPECIOSA, introduced from the East Indies about seventy years ago as Justicia speciosa, was for some time a favorite winter-flowering plant; but like many others cultivated then it is now seldom seen. When well grown it is a pleasing subject for an intermediate house in the winter months. Many good Acanthads are neglected because they are almost useless for cutting purposes, their flowers being fugacious. It is unfortunate that many persons like plants only for their usefulness for cutting, especially as not a few of our most showy flowers have short lives. Although the flowers of this plant do not last long when cut, they are produced plentifully on the plants for several weeks. Peristrophe speciosa is an erect plant, branching freely, and its stem and branches are thickly clad with opposite, ovate, acuminate, pale green leaves. The flowers are about one inch long, and the twisted tube is a pale purplish color, while the two elliptic oblong lips are a rich carmine-purple. One-year-old plants give the most satisfaction, as they are more neat and compact than older ones. The tips of the young branches make good cuttings, and if rooted in April and planted out in the garden in May they make large plants by the end of August, when they should be taken up.

Another Acanthad that deserves special notice at this time is Strobilanthes anisophyllus. It is a handsome, graceful and very floriferous plant; in fact, every twig and branch is loaded with flowers. The graceful branches, about one foot and a half long, have opposite unequal, lanceolate, acuminate leaves. Its flowers are of a pleasing lavender color. The showy part is the corolla, which is more than one inch long and about three-fourths of an inch wide at the mouth. It was introduced from Sylhet in 1823 and was known under the generic name Goldfussia. Another species which flowers at this time, S. isophyllus, makes a compact little bush, but is not so graceful as S. anisophyllus. The stems and branches are more erect, and its leaves equal or nearly so. Its flowers are lavender color and about the same size as those of S. anisophyllus. Both are easy plants to grow. Cuttings of the young growth made in March root easily with a little bottom-heat. When well rooted they should be put into small pots, giving another shift into larger pots as needed. As soon as the weather is warm they should be planted out in the garden, where they grow vigorously if given plenty of water. To get nice bushy plants the young points of the branches must be cut back regularly until the last week in July. They may be taken up about the last week in August, when they will be large enough for six-inch pots. They thrive in a compost of good loam, mixed with a small quantity of dried cow-manure and some leaf-mold and sand, and flower well in a temperature ranging from fifty-five to sixty degrees.

Botanic Garden, Harvard University. *R. Cameron.*

A Few Momordicas.

THIS genus, which contains some twenty-six species of annual, or, in a few cases, perennial climbers, is distinguished by the neat appearance of the foliage, small yellowish flowers, the male peduncles of which bear a bract. The fruit is usually bright-colored and fleshy, bursting open when ripe.

Momordica balsaminea, the Balsam Apple, has deeply and much laciniated palmate leaves of a dark green color and short, smooth orange-colored fruit. This species is often confounded with M. Charantia, the common Balsam Pear, the leaves of which are palmate like the other, but the lobes are rounded and not deeply sharp-pointed. The fruit is yellow, elongated and covered with many angled tubercles. The fruit preserved in spirits is commonly used as a vulnerary. Another species which we had here last summer was M. Martineseum. I can find no record of such a name. The flowers are whitish; leaves a little like those of M. Charantia, and fruit resembling that of M. balsaminea in shape, but paler in color. The seeds were in a collection sent from the West Indies to the University six or seven years ago and had been in the museum since.

The Momordicas are easy of culture, and the seeds, if placed in the ground where they are to grow, after danger from frost is past, will quickly spring up. Given a few strings or wires to run upon, and left to themselves, they will quickly form a nice screen, and, what is more important, will retain their dark green elegant foliage until pretty late in summer, even after all other cucurbitaceous climbers are withered.

Allied to Momordica is the genus Luffa, which has no bract on the male peduncle and has a long cylindrical fruit or pepo, which at length becomes dry and fibrous within. They are climbers somewhat coarse in appearance, having large leaves and yellow flowers. The chief interest in these plants lies in the fibrous fruit which often attains a length of two feet or more. As it ripens, the outer skin becomes dark and dry; then a little circular lid at the tip opens and gives the elliptical black seeds a chance to drop out. The skeleton of the fruit can be used as a wash-cloth, whence the common name of Wash-cloth Gourd. Prepared by softening and bleaching it is sold in drug stores for use in the bath-room. There are many species known, but L. Ægyptiaca is the most common form. They are easily grown, though, like the rest of the family, they do best in a very rich open soil.

Botanic Garden, Univ. of Pa. *Alex. MacElwee.*

Notes from Santa Barbara.

Tecoma Smithii.—Plants of this shrubby hybrid, raised from seed received about a year ago from its originator, Mr. Edward Smith, of Adelaide, South Australia, are in bloom now, and, for the sake of variety at least, will prove a welcome addition to our flowering shrubs. It must be confessed, however, that both the parents of this plant—namely, Tecoma velutina, with yellow flowers, and T. Capensis, with scarlet flowers—have

more intrinsic ornamental value than this new intermediate form, which partakes of the characters of both.

Berberis pruinosa.—This recent introduction from Tibet, through the French missionaries, proves to be a neat and attractive little shrub, the new growth, the underside of the leaves and the abundant berries being all pure white and the flowers sulphur-yellow. Here it flourishes in full sunshine, as does its antarctic congener, Berberis Darwinii, from southern Chile and Fuegia. A fine bush of the latter, literally covered with its rich orange blossoms, is just making a suggestive contrast with the numberless bunches of the crimson-flowered tropical Passiflora princeps, which covers an extensive trellis close by.

Polygonum elegans.—This is a half-shrubby Buckwheat, growing about two feet high and twice as much across, with nearly leafless wiry stems and myriads of small white flowers. It makes a first-rate plant for the rockery or the herbaceous border, besides being useful for cut flowers. It is a native of Mount Gargano, in southern Italy, and will prove satisfactory, even if grown in pots.

Tagetes lacera.—This is one of a large number of new plants lately discovered by Mr. Brandegee in the extreme south of the peninsula of California. It makes a pretty compact bush, four to five feet high, well furnished to the base with finely cut metallic-green foliage, having the peculiar smell of other Marigolds, and bears a profusion of yellow flowers, mostly produced in winter. Small plants can be well bloomed in pots.

Pittosporum phylliræoides.—This is a striking species from the desert regions of Australia and quite distinct in habit from all others with which we are familiar. It resembles an evergreen Weeping Willow, with yellowish, rather small solitary flowers in the axils of the leaves, succeeded by far more conspicuous yellow elliptical fruits.

Santa Barbara, Calif. *F. Francheschi.*

Crassula quadrifida.—This plant is now in full bloom in the succulent house, and is one of the best of the species. The leaves are thick and leathery, ovate spathulate in form, at first sessile, afterward forming a short petiole, and arranged decussately on the stems. The flowers are borne in terminal panicles; the under sides are bright pink and the upper a very light pink. The parts of the flower are all in fours. The individual flowers do not exceed half an inch in diameter, but the quantity produced makes it a very attractive plant. It is, moreover, well adapted for a hanging basket, as the lower branches droop gracefully round the pot in which it is growing. It is also an excellent window-plant, as the leaves are of good texture, well able to withstand a dry atmosphere and at the same time it requires but little water.

Cotyledon gibbiflora.—This plant is now in full bloom in the same house and is better known under the name of Echeveria metallica. The fleshy leaves are about six inches long by two wide, arranged alternately round the top of a short thickened stem, and of a metallic color. The flower-stalks, which are some two feet in height, grow from the axils of the lower leaves and are clothed with small leaves alternately disposed. The flowers of this plant are singularly beautiful, and are what are termed perfect flowers, all the parts being present. The calyx is composed of five spreading sepals, much the same color as the leaves. The corolla is of a rich salmon, and composed of five upright petals. There are ten stamens and five pistils.

Perhaps it may be added, in this connection, that one of the best ways of drying succulent plants for herbariums is to dip the specimen in very hot water, when it may be pressed with as much ease as any ordinary plant, and the flowers will retain their color.

Northampton, Mass. *Edward J. Canning.*

The Pleiones.—This group of very dwarf, large-flowered Orchids is now generally included under the genus Cœlogyne. The plants, although quite beautiful, are seldom seen in this country, but deserve to be grown even in choice collections. They are natives of Assam, Nepaul and Sikkim, and plants with shriveled pseudo-bulbs close to the ground and deciduous foliage of a membranous texture. The flowers are produced in great abundance, but are almost sessile and solitary white or rose-colored, with or without yellow veins in the lip. Some are exceedingly showy, others are chiefly of botanical interest. All flower freely under cultivation—almost resembling certain varieties of Crocus when seen at a distance. The flowers appear before the leaf, or, in other words, during the period of rest, which occurs at different times for different species. Most common is Pleione lagenaria. The sepals and petals of this species are of a rosy lilac, the lip being pure white, with yellow and crimson bars and veins. The leaf is solitary, membranous and plaited, springing from a peculiar wrinkled, bottle-shaped pseudo-bulb. P. humilis is another common kind, with flowers smaller than those of the first-named species, almost white, with the lip marked with brown and crimson or yellow. The flowers are numerous and appear late in fall. P. maculata is one of the finest of all, with pure white sepals and petals and lip barred with crimson and yellow. The flowers appear late in fall. P. Hookeriana is one of the smallest of the section, very dwarf, with rose-colored flowers produced in spring, at the same time as the leaves. P. Wallichiana has large, sweet-scented flowers of a bright rose-color. All the species do best in shallow pans, in equal parts chopped peat, sphagnum and silver sand and an addition of well-decayed cow-manure. A cool, airy position is most suitable to them. During the growing season an abundance of water should be given, and then gradually withheld as the young bulbs have reached a normal size. The plants should then be allowed to rest until the buds begin to appear.

Newark, N. J. *N. J. R.*

Correspondence.

Old Stone Bridges in Pennsylvania.

To the Editor of GARDEN AND FOREST:

Sir,—Your picture of an English stone bridge again reminds me that such bridges are numerous in south-eastern Pennsylvania—one over the Pickering Creek, just above where it empties into the Schuylkill River, in Schuylkill township, Chester County, forming part of the old highway to Philadelphia, along which the armies of Washington and Howe encamped and marched in the autumn of 1777. Valley Forge is two miles below. There are stone bridges, some of them with several arches, over the Perkiomen, the Manatawney, the Brandywine and other streams in south-eastern Pennsylvania. The one over the Perkiomen, in Montgomery County, built in the last century, partly with money raised by a lottery, is the subject of these appreciative lines which I find in "The Perkiomen Region":

> The bridge of old-time masonry, intact,
> Untouched by passing flood or rising tide,
> A monument unshaken, stanch, compact,
> Standing so firm and strong, to pick our pride,
> Asks us, who builds to-day, with conscience pure,
> The sterling structures that shall still endure?

But, besides the poetess, the county commissioners and judges of Chester and Bucks Counties have lately been drawing a comparison between the durability of the old stone bridges and the new and ugly iron bridges. This investigation shows that the iron structures cost for repairs, painting, etc., every year, more than the stone bridges have cost in half a century.

Philadelphia, Pa. *Isaac R. Pennypacker.*

Training Tomatoes.

To the Editor of GARDEN AND FOREST:

Sir,—Referring to the Tomato-trellis described on page 37, I would say that for several seasons I have used wire netting in my garden for training Tomatoes in preference to stakes and strings. Netting three feet wide, securely tacked to strong stakes set at intervals of three and a half or four feet apart was formerly used, but greater width is desirable. This forms a perpendicular trellis about four feet high, as the wire should be placed ten or twelve inches from the ground. Stakes two by four inches are heavy enough if braced the first season, although I have used three-inch hard-hack fence-posts. A light strip of wood may be run across the top for staying the upper edge of the wire, but this is not essential unless heavy blankets are to be used for protection against light frosts in autumn. Raffia, once used for tying the vines to the wire, will never be superseded by strings; it is always soft, pliable and strong, never stretching in wet weather or slipping if properly tied.

This method of training Tomatoes admits air on all sides and does not interrupt the sun's rays. The fruit ripens evenly, is easily picked and readily protected on cold nights.

An ideal trellis of this sort was developed in a neighbor's garden the past season. Ten-foot stakes and netting two feet wide were used. But the growth of the Ponderosa is phenomenal, and two other strips of netting were added, with a space of a few inches between them. The result was a handsome screen fully eight feet high, thickly decorated with crimson fruits. The aspirations of the vines, however, were

unsatisfied, and a foot more of netting would have been covered. The expense of such an arrangement is light, and the profit and pleasure arising from clean well-ripened fruit is satisfactory in every way.

Pittsford Mills, Vt. *G. A. Woolson.*

Habits of Ferns.

To the Editor of Garden and Forest:

Sir,—Regarding the habits of Aspidium aristichoides (see page 18), I think that an examination with an ordinary lens will show that the fronds become prostrate through the decay of the tissue at a point not far above the ground. To my mind, these fronds are not "protecting themselves from snow," but anticipating death, in order to give way to the new fronds next spring. They are always when prostrate entirely limp at this point just above the surface.

A specimen at present in our window was taken from the forest in November last. The matured outer fronds are prostrate, but the younger inner ones are as perfectly erect as ever. At the time this plant was dug most of its neighbors had perfected the size of their fronds, and were then wholly prostrate. The specimen in question was selected because of its evidently less mature, and still erect, fronds. It is much admired by visitors, few of whom know that it is one of our native Ferns.

Cranford, N. J. *C. S. Valentine.*

Meetings of Societies.

The Western New York Horticultural Society.—III.

Will it pay to plant more apple orchards?

Mr. Willard thought that apple-growing was still too much neglected. Orchards once profitable are now decaying; many are practically worthless, and in western New York there are not enough young trees planted to take their places. The acreage of other fruits is increasing, but the one kind of fruit which a young farmer should plant, because he will be sure in later life to reap the benefit of such an outlay, is the Apple. The scab is the worst foe of Apple orchards, and the great need is scab-proof varieties. The old Baldwin is one of the kinds which are the worst affected. If badly attacked one season the effects will continue the next year. The disease can be held in check by spraying, and the trees should be strengthened by strong feeding. Varieties known to be almost scab-proof should be selected, such as Duchess of Oldenburg, Sutton's Beauty and Hubbardston. Sutton's Beauty is the best variety we have, and will be free from scab in seasons when the Baldwin is ruined. Mr. Willard had one tree with Longfield and Baldwin grafted on the same root. Longfield bore good fruit and smooth, when the Baldwin apples were worthless. Mr. Morris, of Ontario, said that Canadian apples sold better in the market than the United States apples, not because of freedom from scab, but because they were packed better. Mr. Woolverton said that the Government of Ontario sent three different teams of men to show fruit-growers how to spray. They did the work well—sprayed in thirty different places six times—and it was a very helpful experiment. He found the Cranberry Pippin not superior in quality as a winter apple, but scab-proof. It commands a good price in Liverpool and Glasgow, and has been shipped, when carefully selected and wrapped in tissue-paper, to New South Wales. The Baldwins did not stand the journey as well as the Cranberry Pippins, which were considered the best apples there. Mr. Fowler said that while the Ben Davis was not found in fancy-fruit stores the pie-bakers bought it by the carload. With many people the Cranberry Pippin was no better than Ben Davis. The Wealthy is apt to overbear, but, if thinned out, is an excellent apple, and is practically scab-proof. In Chicago the Ben Davis brings $2.50, while Snow apples brought out from cold storage sold for $6. Mr. Van Deman said that the Mississippi Valley, from Ohio to Kansas, was the true home of the Ben Davis, and that the season was not long enough for it in New York or Ontario. He spoke of the York Imperial as a good business apple. Stark is not high enough in color, and is astringent in quality. What the market demands is a rich, bright apple. York Imperial is far better in quality than the Ben Davis. The best fruit of this variety is grown in Pennsylvania, and it stands high in Liverpool markets. Mr. Hale thought that there was no better outlook for fruit-planting than winter apples of high quality and bright color. It would pay in New England. He proposed next spring to plant Sutton's Beauty, feed it well, thin the fruit, and then watch and spray.

The cultivation of the Dewberry.

According to Mr. J. A. Wilcox, the growing of this fruit began about twenty years ago, but not until within a dozen years has any attention been given to it in a large way. Of about a dozen varieties the best for this region is the Lucretia, and often where it is said to have failed the roots planted were not true to name or the plants have received improper care. Mr. Wilcox had increased his plantation from year to year, and with continued satisfaction, and only regretted that he did not do so more rapidly. This Dewberry was found in West Virginia by a Mr. Williams, of Miami County. Some plants were sent to his father and five to Mr. Alwell, in Illinois. These last grew and matured, and from them all the stock has come. Dewberries do well on gravel, clay, loam and sandy loam. They ripen the earliest on gravel, but the loam is the best in dry seasons. They should not be planted where the roots will heave or where the snow will blow off. They need all the sunshine they can get and, therefore, should never be planted under trees, although wind-breaks help them. They can be transplanted with the green shoots started, if three or four inches of the roots are kept, and they should be set about three inches deep, with the soil compactly pressed about the roots, in rows six feet apart, with the plants three feet apart in the row. The plants should be kept clean and the surface loose by frequent cultivation, and a growth of from three to six feet may be expected the first year. Plants increase from the tips, which often will color at the ends when they are ready to root. These tips should be covered to encourage rooting. They will be ready for this covering at different times, so the field should be gone over two or three times to get them all. If covered too soon the tip will keep growing and not root, and the covering will need to be repeated. When the buds start in the spring plants should be pruned, and all the wood that has been winter-killed should be taken out. Three canes three feet long, or, as the bushes get older, five or six canes may be left. A wire trellis, preferably three wires, the lower one being three feet from the ground should be used, and the vines well spread on the wires. The berries should be picked every other day as soon as they are well formed and colored, and they will not turn red if left in the sun after packing as blackberries do. Cultivation after harvesting is not advised, nor is it advised while the plants are in blossom, but the special merits of the Dewberry are its large size and early ripening. Last year the fruit was fit to market on the 30th of June, which was earlier than usual and some two weeks ahead of blackberries. The berries average twelve cents a quart, and the vines yield 2,000 quarts an acre, or under heavy fertilization 3,000 quarts. The demerits of the fruit are that it is not quite as good as the best blackberries, and the plants are not perfectly hardy. It is safest to protect even old plants, and it requires more skill to grow them than it does the bush berries. So far the plants are comparatively free from disease, the most serious one being an insect which bores at the base of the stalks.

The business of fruit-selling.

Mr. J. H. Hale, of Connecticut, said that the marketing of fruit begins properly with selecting the right varieties and planting them properly. For complete success the fruit grower must go to the wholesale market, to the retail market, and, if possible, to the consumer, to learn just exactly what is wanted. In this way the grower can, to a certain extent, educate the market, which is also a good thing, but he must understand primarily what the people want. The more time a grower spends in the market the better is the form in which his goods will be placed. A fine appearance opens the consumer's pocket-book, and then quality keeps it open. To make a real success one must have a genuine affection for his fruit. He must believe in it, and he must impress this belief on his package. After he has done all this he must go to the dealer and tell him what he proposes to do and impress this sincere intention upon him. The commission man must be made his partner, and the grower should only take as a partner a man who honestly loves his business, takes an interest in it for its own sake and for his reputation sake, as well as for mere money. The grower should induce the marketman to come and look at his orchards, even if he has to pay his fare. Then he can say, "I know this fruit, I know how it is picked, I saw it packed and taken care of," and he will receive more for it than if his interest was not thus aroused. To catch the eye the fruit must come as near to maturity as possible to get its proper color, and it will then hold the consumer, too, as its finest flavor is only developed in these last hours. The rule should be: Pick quickly, store promptly in a cool place, cure carefully, pack honestly, and use such packages as the market demands, as, for example, baskets for Philadelphia, boxes for Chicago, etc. Honesty is the best policy; well-graded fruit will sell for forty per cent. more than ungraded fruit from the same locality. The Chautauqua grape shippers lose much in

losing their individuality. An established reputation is worth a good deal. Certain growers habitually receive twenty-five per cent. more for the same fruit than their neighbors because the dealers know their grades. The use of printers' ink pays. Buyers ought to know what growers have to sell. There is a growing demand for the very best. Mr. Hale's own first-grade peaches sell the easiest, and they bring $2.50 a basket; the third grade sells the slowest, and for these he only gets seventy-five cents, and sometimes only fifty. This year his Georgia orchard came into bearing. He had a man in each large city who devoted his entire time to placing his peaches during their short season. He never ships to more than one man in any place. These chosen men were enterprising; they had informed retailers of what was coming, so that the crop was picked, packed and railroaded as rapidly as possible to a market already waiting for the product. Mr. Hale attributes whatever success he has made largely to methods of marketing. There is certainly not enough profit in the fruit business to let this practical end of it run itself.

PEACH-GROWING.—This industry is profitable in western New York, if conducted on strictly business principles. Peaches have the advantage of coming into bearing earlier than Apples. The fruits should always be thinned, so that they remain from six to eight inches apart on the branches. The trees will grow on almost any soil, if the cultivation is adapted to it, but, according to Mr. Hale, a light loam is an ideal Peach soil, except for Crawford's Late. The fourth-year trees on light land are twice the size of those on clay. Perfect drainage is essential, and thorough cultivation. The Crawford is the most tender type of Peaches, while Elberta is one of the hardiest, ranking with Mountain Rose and Stump. Mr. Hale thins when the peaches are about the size of a walnut. He prunes to a single stem at planting, with three main branches shortened in to six inches or more, and cuts away the limbs which interfere. He wants low-headed, well-branched trees shortened back every year about a half of the growth. He prunes for form, but does not prune until the buds are swollen, so that he can be sure to cut away dead wood. In this way he often gets badly formed trees, but they bear fruit. The distance from the ground to the first branch is from fifteen to twenty-four inches.

Peninsula Horticultural Society.

THE ninth annual meeting of the Peninsula Horticultural Society was held in Denton, Maryland, a fortnight ago.

The Fruit Committee reported the Tennessee Strawberry as one of the most promising. It is as early as Meek and produced well the past season. Greenville is one of the most desirable for ordinary growers. Timbrell and Marshall have not met expectations. Brandywine, on the lower part of the peninsula, shows a tendency to rust; Lady Thompson lacks productiveness, but is highly praised by many who have fruited it; Bubach is the most extensively grown. The Strawberry weevil, Anthonomus signatus, seriously injured the perfect flowering varieties in the vicinity of Denton the past season. The best preventive is the single-crop system and burning over the fields soon after the berries are picked.

The Blackcap Raspberries have not proved a profitable crop, and the early red varieties have almost entirely superseded them. The Miller is largely planted and has proved productive and a good shipper. Loudon is promising. Marion is a stout grower. The Wilson Blackberry has been partially discarded for a few years, but is now coming to the front again and has been quite largely planted. Maxwell and Eldorado are on trial; the latter, though producing fine crops of large berries, may prove too late in ripening. Lincoln is worthy of a trial.

Many Peach orchards failed the past season on account of the destruction of the blossoms by a fungus which was aided by the moist condition of the atmosphere. Yet the reports show that from two-thirds to three-fourths of a crop brought remunerative prices. Elberta has proved one of the most desirable varieties. The Committee on Peaches reported that the area of young orchards is on the increase in western Maryland. While the last season's crop was below the average in yield, satisfactory prices were secured by the growers, and the money was received as soon as the fruit was loaded into the cars.

Plums and Apples have been largely planted during the year. The Japanese varieties of Plums give the best satisfaction; Abundance, Burbank and Ogon being most extensively planted. An acre and three-fourths of land near Smyrna, Delaware, which was planted five years ago with one hundred and fifty Abundance, ten Kelsey and ten Ogon trees, between the rows of which were 1,200 Currant-bushes, netted the owner $650 during the past season.

A marked feature of the meeting was the display of fruit from Delaware and Maryland. There were 250 plates of apples exhibited, comprising ninety varieties, several varieties of pears, chestnuts, walnuts and filberts. A striking contrast was shown between the apples from trees sprayed during the season and from those not sprayed, the fruit from the former being much fairer and of better color than that from the unsprayed trees.

The San José scale appears to have gained a foothold in numerous localities in Maryland, and vigorous measures will be necessary to prevent extensive damages to the fruit interests of the state in future. Mr. R. S. Emory, of Chestertown, has been making a vigorous fight the past year to exterminate it in portions of his Pear orchards, which have become badly infested. He stated that whale-oil soap, manufactured from oil containing its original impurities, had proved effectual in destroying the scales. He used two and a half pounds of the soap to one gallon of hot water, and sprayed the hot mixture on the trees after the leaves had fallen. Mr. Emory has one block of almost 300 Pear-trees, planted in the fall of 1888, which were found to be nearly covered with the scale in the fall of 1894. Since that time he has repeatedly treated them with various insecticides, such as kerosene emulsion, whale-oil soap, etc. At this time the hot mixture of whale-oil soap appears to have been effectual in freeing the trees from the scale. The Delaware Experiment Station officials reported that 116 suspected orchards in Delaware had been visited and the trees examined during the past season. The San José scale was found in thirteen localities in the state. The infested trees, in nearly every instance, were at once destroyed, and others have been treated with insecticides under the supervision of the station entomologist. The society urges the passage of laws that will prove effectual in preventing the spread of injurious insects and fungal diseases, and, whenever practicable, to exterminate the same.

Mr. J. J. Rosa, of Milford, Delaware, a successful grower of Sweet-potatoes, gave an interesting talk on his method of cultivation. The Big Stem Jersey variety gives the best satisfaction. The plants are grown by the use of bottom-heat, and from a bed ten by forty feet he took more than ten hundred thousand plants. The potatoes are stored soon after digging, and kept at a uniform temperature of sixty degrees. The yield in 1894 was 650 baskets of marketable tubers from an acre and 200 baskets of culls. The baskets held five-eighths of a bushel each. The receipts from four and a half acres of Sweet-potatoes in 1894 were $433; in 1895 the crop from the same land was sold for $650.

Mr. H. E. Van Deman, ex-United States Pomologist, was re-elected President; Mr. W. Webb, Secretary and Treasurer. The next annual meeting will be held in Milford, Delaware.

Delaware Agricultural Experiment Station. *M. H. Beckwith.*

Recent Publications.

Number 6 of the third volume of the *Contributions from the United States National Herbarium* is devoted to a list of plants collected by Mr. Frederick Funston on the shores of Yakutat Bay, in Alaska, and prepared by Dr. F. V. Coville, of the Department of Agriculture. One hundred and sixty-eight species are included in the list, to which is prefixed Mr. Funston's interesting Field Report, from which it appears that Picea Sitchensis, the Tide-water Spruce, is the common tree of the region, growing to a height of seventy feet and extending from the level of the sea to an altitude of 2,200 feet on the slopes of Mount Tebenkof. This tree plays an important part in the economy of the Alaska Indians; with it they construct their houses and canoes; it is used in the manufacture of oil-crates, bows, arrows and other implements, and the small roots, boiled and split, are employed in basket-weaving. The Hemlock, Tsuga Mertensiana, is found scattered through the forest of Spruces with about the same vertical range as that tree, although it is much less abundant and of smaller size. The third conifer found by Mr. Funston in this region was a single individual of the Sitka Cypress, Chamæcyparis Nootkatensis. The common deciduous-leaved tree is the Red Alder, Alnus Oregona, which Mr. Funston noticed in great quantities in the forest region, especially on the edges of open glades, along the banks of streams and on the mountain sides, where it ascends to higher elevations than the Spruce, extending up Mount Tebenkof eight hundred feet

higher than the Spruce and Hemlock, or to about three thousand feet, growing on these high slopes in jungles so dense as to be almost impenetrable, and constituting one of the most serious obstacles to mountain climbing,

A Blueberry, Vaccinium ovalifolium, a shrub four feet in height, forms a large part of the forest undergrowth near the coast. The dark purple berries, rather larger than peas, are collected in great quantities by the Indians, who use them fresh and preserve them for winter, drying the fresh berries by artificial heat. In September, immediately after the close of the fishing season, nearly all the women and children devote themselves to collecting and drying blueberries for winter. The fruit of Rubus spectabilis, the well-known Salmon berry of the north-west coast, ripens in August and is also an important article of food among the natives. This fruit is usually crushed in a wooden bowl and eaten with sea-oil, and is not preserved for winter use.

Notes.

Mr. James A. Pettigrew, late Superintendent of Parks in Milwaukee, has been appointed Superintendent of Parks in Brooklyn, in place of Rudolph Ulrich, who has resigned his position, the resignation dating from the first of March.

The Botanic Garden of the University of Pennsylvania is hardly more than a year old, and consisted originally of six acres of very rough land. Already a little lake takes the place of what was a gravel pit; there are bog and aquatic gardens, a rock garden, a bulb garden, an Iris garden, an herbaceous garden and a great many trees and shrubs, so that more than three thousand species are already represented. Professor J. H. Maclarlane is Director, and Alexander MacElwee the head-gardener.

The herbarium of the late John H. Redfield, of Philadelphia, which is extremely rich in Ferns from all parts of the world and in North American plants generally, containing all the sets made during the last fifty years in the western and south-western parts of the country, is to be sold by the Philadelphia Academy of Sciences, to which it was bequeathed under Mr. Redfield's will. The money derived from its sale, as well as that lately obtained from the sale of his botanical library, will form the nucleus of a Redfield fund of $20,000 his friends hope to raise for the benefit of the Botanical Department of the Academy, which Mr. Redfield served faithfully for many years as curator.

East River Park is one of the comparatively new pleasure-grounds of this city which includes two blocks on the river, in one of the densely inhabited districts of the city between Eighty-fourth and Eighty-sixth Streets. A correspondent of *The Sun* of this city writes to say that just as soon as the improvement of the land was begun and the place grew in attractiveness the character of the neighborhood at once changed for the better, the houses became neater, cleanliness was more general, there was less dissipation, for the people now sit in the park instead of in the saloons. Altogether the change wrought in a congested neighborhood is reported as remarkable, and it furnishes a strong argument for providing more open spaces in the tenement-house districts.

Not long ago Mr. J. L. Normand, of Marksville, Louisiana, sent to this office what he considered the fruit of Benincasa cerifera, but which seems to be the fruit of Sicana odorifera, a Brazilian cucurbitaceous plant. This fruit is about a foot long, three inches in diameter, with rounded ends, of a deep crimson color and delightfully fragrant. In its natural state it does not appear be at all edible, but Mr. Normand has made some preserved preparations which he considers worth something. Benincasa cerifera, the so-called White Gourd of India, is more nearly spherical, greenish in color, covered with a waxy bloom, and is used while green in making curries. If seeds of this Sicana are started early in pots and the plants set in rich soil after all danger of frost is over, they make a large growth in a single season. One of Mr. Normand's plants climbed, it is said, to the top of a good-sized dead tree and produced two hundred fruits, which weighed from four to six pounds each.

A few Florida oranges are included in the stock of the best fruit stores, and cost $1.00 each. A limited quantity of Navel oranges from that state recently secured by the old retail fruit house of W. & C. Smith, on lower Broadway, is selling for from seventy-five cents to $2.00 a dozen. Previous to the freeze in Florida a year ago last December $4.00 a box for grape-fruit was a high price in the wholesale markets of this city, but in view of the unusual scarcity as much as $18.00 a box is now asked, and retail dealers are forced to sell this fruit at $6.00 a dozen. The experiment is being made of introducing some bitter oranges from the Bahamas, to take the place of grape-fruit, the initial importation last week selling at $2.00 a box. Selected pineapples from Havana cost fifty cents each at retail, and large smooth Cayenne pineapples from Florida, beautifully colored and with luxuriant tops, command double this price. Showy Lady-apples from Missouri bring twenty cents a dozen. Long Island Newtown pippins, mottled and brightly colored, and the green and russet Albemarle pippin from Virginia cost sixty cents a dozen for selected fruits. Pint boxes of small but well-colored strawberries from Florida cost fifty cents. The first Charleston strawberries were seen here last week.

Besides celery from this state and New Jersey, this vegetable is now supplied by some of the middle western states and California. The latter state is also sending tomatoes, the principal field-grown supplies coming from Key West, Florida, and Cuba. Smooth, even-sized and beautifully colored tomatoes from Pennsylvania hot-houses cost thirty-five cents a pound. Lettuce is coming from Louisiana in small lots, the dependence being on Florida, South Carolina and Virginia. Egg-plants, beets and string-beans also come from Florida, and new peas from the same state cost $1.00 a half-peck. The first Florida cabbage of the season has been forwarded, but is not yet fully grown. The regular winter supply of home-grown cabbage is nearly exhausted, and that imported from Denmark now constitutes the main supply. Norfolk is sending kale and spinach, and Bermuda is contributing a variety of new crop vegetables, as potatoes, onions, carrots and beets. Asparagus from Charleston brings $2.50 a bunch; a dozen long shoots from near-by hot-houses, and enough of a luxury to be held together by narrow ribbon, cost $1.00, and the less crisp and fresh product from western glass houses may be had for sixty cents. Large mushrooms of uniform size and even color from Long Island forcing-houses are offered at $1.00 a pound, some hardly less attractive costing sixty to seventy-five cents.

Beds of many colored Tulips and other gay bulbous flowers, which made gardens of the florists' windows a few weeks ago, have given way to other suggestions of approaching spring, as branches of Pussy Willow thickly set with downy catkins, and of Forsythia, the golden bells in luxuriant flowering on the nearly leafless stems. Small plants of Heaths continue to be a conspicuous offering, although many of the best plants are still in the greenhouses of cultivators and will not be seen in city stores until the Easter season. The window exhibits of florists are more than a display of stock, and in the best establishments are both tasteful and artistic. A crowded window of thickly placed plants, without reference to arrangement or color, is rare enough to impress this fact. Groups of Cinerarias are likely to make exasperating masses of color, but a few of these plants in the window of a store on Fifth Avenue appeared to really pleasing advantage, the bouquet-like mass of flowers set in the immense leaves. Pink and white Azaleas are among the best-flowered and most beautiful plants now seen, and Cytisus racemosus and the more delicate flowers and foliage of Acacia dealbata give the touch of yellow which seems necessary in a collection. In one window the moss-draped trunk and branches of a tree constitute the main attraction, with Orchids growing from the bark and openings, an owl and hornet's nest being added for more realistic effect. In another a great vase of Bride roses was easily the most attractive object in a collection of cut flowers, and large deep buds, the edges of the outer petals beautifully recurved, made a richer show in their ivory whiteness than any of the more brilliantly colored flowers. An exceptional stem of this particularly well-grown lot measured four feet, the average being more than two feet in length. Marie Louise violets, in bunches of fifty blossoms, command $1.50. Tiny spikes of a dwarf mignonette, very attractive in their neat form, cost thirty-five cents a dozen, and great spikes of the same flower measuring nearly a foot in length cost fifty cents each. The brightest and showiest bits of color are made by neat little buds of Papa Gontier roses, which sell for the reasonable price of a dollar a dozen. Sprays of white and purple lilac are included in the best offerings of cut flowers. An original effect with the charm of simplicity is a window measuring, perhaps, seven by eighteen feet, the margin framed with a wire foundation fifteen inches wide, hidden with smilax and dotted with Bridesmaid roses. A mass of well-grouped Palms set back some six feet furnish the satisfying picture for this beautiful frame.